

Claims

## WHAT IS CLAIMED IS:

1. A modular apparatus for integrating mobile computing device features with a wireless communication device, the apparatus comprising:

5 a handheld information input/output device;

a handheld wireless communication device having an information processing module; and

10 a universal joint with mechanical latch positions attaching the information input/output device to the wireless communication device, the universal joint allowing separation of the information input/output device from the wireless communication device, whereby, when the information input/output device and the wireless communication device are connected, the information input/output device interacts with the information processing module to integrate mobile computing features with the wireless communication device.

15 2. The modular apparatus of claim 1 wherein the handheld information input/output device comprises:

an input device inputting information into the information processing module; and

a display presenting output processed from the information-processing device.

20 3. The modular apparatus of claim 2 wherein the universal joint latches in at least one position fastening the wireless communication device to and in a relative position to the information input/output device to allow a user to hold with one hand both devices and input information with the same hand.

25 4. The modular apparatus of claim 3 wherein the display presents an output image, an orientation of the output image adapted based upon a position of the display relative to the wireless communication device.

5. The modular apparatus of claim 4 wherein the output image on the display is adapted for left-hand orientation.

6. The modular apparatus of claim 4 wherein the output image on the display is adapted for right-hand orientation.

7. The modular apparatus of claim 4 wherein the orientation of the output image is controlled by a selection element.

8. The modular apparatus of claim 1 wherein a universal joint is a pivot rotating the information input/output device tangential to the wireless communication device, the information input/output device rotatable on a vertical axis.

9. The modular apparatus of claim 8 wherein the information input/output device is rotatable between 0 and 360 degrees.

10. The modular apparatus of claim 1 wherein the universal joint comprises:  
at least one electrical contact electrically connecting the information input/output device to the wireless communication device, the wireless communication device supplying power to the information input/output device through the electrical contacts.

11. The modular apparatus of claim 10 wherein the electrical contact transmits and receives information between the information input/output device and the wireless communication device.

12. The modular apparatus of claim 1 wherein the universal joint comprises a swivel rotating the information input/output device normal to the wireless communication device, the information input/output device rotatable on a horizontal axis.

13. The modular apparatus of claim 12 wherein the information input/output device is rotatable between 0 and 90 degrees.

14. The modular apparatus of claim 12 wherein the swivel latches in at least one position fastening the information input/output device to and in a relative position to the wireless communication device to allow the modular apparatus to stand on a surface of the wireless

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communication device thereby allowing a user to position the modular apparatus on a flat surface for viewing the display.

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15. The modular apparatus of claim 1 wherein the wireless communication device and the information input/output device are detached from the universal joint such that the wireless communication device is used independently of the information input/output device.

16. The modular apparatus of claim 1 wherein the wireless communication device is a cellular phone.

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17. The modular apparatus of claim 1 wherein the wireless communication device is an electronic mail receptor and transmission module.

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18. An integrated computing wireless communication apparatus for integrating mobile computing device features with a wireless communication device, the apparatus comprising:

a handheld information input/output device having a display presenting an output image and an input device, the output image having an orientation based upon selection of single-hand input into the input device;

a cellular telephone module having an information processing module; and

a universal joint with mechanical latch positions connecting the handheld information input/output device to the cellular telephone module, the universal joint latches in at least one position fastening the cellular telephone module to and in a relative position to the handheld information input/output device to allow a user to hold with one hand both devices and input information with the same hand, whereby, when the handheld information input/output device and the cellular telephone module are connected at the universal joint, the handheld information input/output device interacts with the information processing module to integrate mobile computing features with the cellular telephone module.

19. The apparatus of claim 18 wherein the universal joint allows separation of the input/output device from the cellular telephone module such that the cellular telephone module may be used independently of the handheld information input/output device.

20. The integrated computing wireless communication apparatus of claim 18 wherein the display presents an orientation of the output image adapted based upon a position of the display relative to the cellular telephone module.

21. The apparatus of claim 18 wherein universal joint comprises:

a pivot rotating the handheld information input/output device tangential to the cellular telephone module, the handheld information input/output device rotatable on a vertical axis; and

a swivel rotating the handheld information input/output device normal to the cellular telephone module, the handheld information input/output device rotatable on a horizontal axis.

22. The apparatus of claim 21 wherein the handheld information input/output device is rotatable between 0 and 360 degrees.

23. The apparatus of claim 21 wherein the handheld information input/output device is  
5 rotatable between 0 and 90 degrees.

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24. An integrated computing wireless communication apparatus comprising:  
a handheld mobile computing device having an input device inputting information and a display presenting output;

5 a handheld wireless communication device; and  
a universal joint with mechanical latch positions connecting the handheld mobile computing device to the handheld wireless communication device, the universal joint allowing separation of the handheld mobile computing device from the handheld wireless communication device such that each device may be used independently of the other device, whereby the connection at the universal joint integrates the handheld mobile computing device and the handheld wireless communication device into a modular two-body apparatus.

25. The apparatus of claim 24 further comprising:  
a wireless link transmitting and receiving information between the handheld wireless communication device and the handheld mobile computing device while the devices are not connected by the universal joint.

26. The apparatus of claim 25 wherein the wireless link transmits and receives information between the handheld wireless communication device and the handheld mobile computing device so long as the devices are within a predetermined range of each other.

27. The apparatus of claim 26 wherein the predetermined range is 30 feet.

28. The apparatus of claim 24 wherein the handheld mobile computing device comprises:  
25 a processor processing information input to the handheld mobile computing device through the input device, whereby output is generated by the processor and presented by the display.

29. The apparatus of claim 28 wherein the handheld mobile computing device further comprises:

30 a battery supplying power to the handheld mobile computing device, the battery charged through at least one electrical contact electrically connecting the handheld mobile computing device

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to the handheld wireless communication device when physically connected by the universal joint, the electrical contact sharing power between the handheld wireless communication device and the handheld mobile computing device.

5           30. The apparatus of claim **24** wherein the handheld wireless communication device comprises:

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a battery supplying power to the handheld wireless communication device, the battery charged through at least one electrical contact electrically connecting the handheld wireless communication device to the handheld mobile computing device when physically connected by the universal joint, the electrical contact sharing power between the handheld wireless communication device and the handheld mobile computing device.

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5           31. The apparatus of claim **24** wherein the universal joint comprises at least one electrical contact electrically connecting the handheld wireless communication device to the handheld mobile computing device when physically connected by the universal joint, the electrical contact passing information between the handheld wireless communication device and the handheld mobile computing device.

20           32. The apparatus of claim **28** wherein the handheld mobile computing device comprises:  
a graphical user interface providing interaction between the user and the device through the input device.

25           33. The apparatus of claim **32** wherein the handheld mobile computing device is a personal digital assistant.

30           34. The apparatus of claim **24** wherein the universal joint latches in at least one position fastening the handheld wireless communication device to and in a relative position to the handheld mobile computing device to allow a user to hold with one hand both devices and input information with the same hand.

35. The apparatus of claim **34** wherein the display presents an output image having an orientation based upon a position of the display relative to the handheld wireless communication device.

36. The apparatus of claim **35** wherein the orientation of the output image is controlled by a selection element.

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